RE: Another Excel File for Discussion

Bob Benson to: Brattin, Bill 08/09/2012 09:37 AM

From: Bob Benson/R8/USEPA/US
To: "Brattin, Bill" <brattin@srcinc.com>
Cc: David Berry/R8/USEPA/US@EPA

I am not very comfortable with the steep slope for clean up (1972-1974) and feeder (1972-1975). The "combined" line is now no longer reasonable to use.

Your analysis of "suspiciously low" IH values seems reasonable. I can agree that this does not appear to be a problem.

"Brattin, Bill" ---08/08/2012 02:17:58 PM---RfC Team In accord with our discussions today, I have performed two supplemental analyses of the Mar

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Cc: David Berry/R8/USEPA/US@EPA, Tim Hilbert <HILBERTJ@UCMAIL.UC.EDU>
Date: 08/08/2012 02:17 PM
Subject: RE: Another Excel File for Discussion

RfC Team

In accord with our discussions today, I have performed two supplemental analyses of the Marysville IH data, as summarized below.

Analysis 1: Fitting of Trionize data by job to exponential model, allowing slope (b) to vary between jobs.

Results are shown in attached file ("Trionizing Dept by job IH Samples 08012012 fit to exponential by job.xlsx"), on the second tab.
Although fits are achieved for all jobs, the upsweep gets pretty severe in some cases, and there would be a substantial difference between the fixed b and the job-specific b approach.
My instinct tells me fixed b is better, but I am not sure I could defend that position.

What do others think ?

Analysis 2: Are some IH values lower than reasonably expected?

I evaluated this by calculating what I think might be a reasonable lower limit for the analytical sensitivity S:

$S = EFA / (FOVs * Afov * Q * d * 1000)$

where
EFA = effective filter area (mm2)

FOVs = number of field of views counted
Afov = area of one field of view (mm2)
Q = sampling pump floe rate (L/min)
D = sampling duration (min)

I made the following guesses:
EFA = 385
FOVs = 100
Afov = 0.00785
Q = 10

I then “flagged” suspicious values where the reported concentration was lower than the “expected” S.
The results are shown in the attached file (“Conc vs sampling duration.xlsx”), second tab.
As seen, if my guesses are reasonable, then the occurrence of “flagged” results is fairly low...about 1-2% of the values.
All of these are samples reported as detects, and none are “non-detects”
Moreover, the magnitude of the difference between the “expected” and reported values is relatively small – an average of about 2 fold.

So, based on this, I conclude that even though some values do appear to be suspiciously low, they are sufficiently infrequent, and the difference is sufficiently small, that this is not likely to be a major cause for concern.

Opinions?

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[attachment "Trionizing Dept by job IH samples 08012012 fit to exponential by job.xlsx" deleted by Bob Benson/R8/USEPA/US] [attachment "Conc vs sampling duration.xlsx" deleted by Bob Benson/R8/USEPA/US]